

Quadratic Eq.

```
import java.util.Scanner;
```

```
class Quadratic
```

```
{
```

```
    int a, b, c;
```

```
    double x1, x2, d;
```

```
    void getd()
```

```
{
```

Scanner s = new Scanner (System.in);
 System.out.println("Enter coefficients of
 a, b, c ");

```
a = s.nextInt();
```

```
b = s.nextInt();
```

```
c = s.nextInt();
```

```
}
```

```
void compute()
```

```
{
```

```
while (a == 0)
```

```
{
```

System.out.println("Not a quad. Eq");
 System.out.println("Enter non-zero value
 a for a :");

```
Scanner s = new Scanner (System.in);
```

```
a = s.nextInt();
```

```
y
```

```
d = b * b - 4 * a * c;
```

```
if (d == 0)
```

```
{
```

```
x1 = (-b) / (2 * a);
```

System.out.println("Roots are real & equal")

System.out.println("Root1 = Root2 = " + x1);

ch4nif (d > 0)

{

$$\text{r1} = ((-b) + (\text{Math.sqrt}(d))) / (\text{double})(2^{\star} a)$$

$$\text{r2} = ((-b) - (\text{Math.sqrt}(d))) / (\text{double})(2^{\star} a)$$

System.out.println("Roots are real & distinct")

System.out.println("Root 1 = " + r1 + " Root 2 = " + r2)

ch4nif (d < 0)

{

System.out.println("Roots are imaginary")

$$\text{r1} = (-b) / (2^{\star} a);$$

$$\text{r2} = \text{Math.sqrt}(-d) / (2^{\star} a);$$

System.out.println("Root 1 = " + r1 + " + i" + r2)

System.out.println("Root 2 = " + r1 + " - i" + r2)

{}

class QuadraticMain

{

public static void main(String args[])

{

QuadraticMain q = new QuadraticMain();

q.get(); // entering values -1, 2, 1

q.compute();

{}

Output

Enter coefficients of a, b, c

2 6 2

Roots are real & distinct

Root 1 = -0.381916, Root 2 = -2.6180

12) 12) 12)

Roots are imaginary

$$\text{Root 1} = 0.0 + i 0.8660$$

$$\text{Root 1} = 0.0 - i 0.8660$$

0 0 0

Not a quadratic eq.

Enter a non-zero value for a:

1 0 0

Roots are real and equal

$$\text{Root 1} = \text{Root 2} = 0.0$$



$\begin{pmatrix} R^2 \\ 2112123 \end{pmatrix}$